the hollow tip of each, was a delicate thread, bearing a string of dew-like drops glistening brightly in the candle-light. Further search revealed numerous specimens in which the lime-water trickling down the stalactite met a similar filament, and being partially diverted had formed a drop at the point of junction; about this drop beautiful aragonite spicules were forming the hollow horizontal branch, the drop of water in the end being retained in position by the filament piercing it, and upon which it is gradually pushed along as evaporation deposits the lime behind it. The length of the branch depends, of course, upon the length of time in which the filament remains intact.

These filaments, which are thus seen to be the cause of the formation of lateral offshoots to stalactites, are the products of a small cave spider.

NOVEMBER 30.

The President, Dr. JOS. LEIDY, in the chair.

Thirty-three persons present.

A paper entitled "On Schorlomite as a variety of Melanite," by Geo. A. Koenig, M. D., was presented for publication.

On Hæmatoxylin in the Bark of Saraca Indica.—Miss HELEN C. DE S. ABBOTT stated that De Candolle[1] and Linnæus describe *Saraca Indica* as a member of the family Leguminosæ. According to De Candolle it belongs to the genus *Jonesia*, *Saraca* Linn., and is separated by five genera from the genus *Hæmatoxylon* or the logwood.

In an article on certain drugs indigenous to India, Dr. Waring[2] gives an account of the medicinal uses of the bark of *Saraca Indica*. The attention of Messrs. Parke, Davis & Co., Detroit, Michigan, was called to this drug, and through their correspondents in India they secured a supply, samples of which have been submitted to the speaker for a chemical analysis. The full results of this analysis will appear elsewhere, but it is now desired to announce a discovery of practical and scientific interest in this connection.

A coloring principle, identical with logwood dye, has been isolated by her from the bark of *Saraca Indica*, where it existed in two conditions, as hæmatoxylin and an oxidized product. The former was separated as yellow crystals, analogous in form to hæmatoxylin crystals from the true logwood, *Hæmatoxylon campechianum*. The alcoholic extract of the bark contained about 18 per cent. of a red colored substance, which agreed in color and dye tests with a like constituent found in logwood.

---

[1] Pro. Sys. Nat. Reg. Vegetabilis, vol. ii, p. 487.

[2] British Med. Jour., June 6, 1885, p. 1145.

Mordanted cotton fabric was dyed with hæmatoxylin, extracted by ether from the *Saraca* bark, and presented the characteristic logwood dye colors.

The following is a table of dye wood colors with reagents, yielded by Brazil wood and logwood :[1]

Reagents.	*Brasilin.*	*Hæmatoxylin.*
Alkalies, ...	Claret-red sol., . .	Reddish purple sol.
Acids (dilute), . . .	Orange ppt., . . .	Pink solution.
" (strong), . . .	Yellow " . . .	" "
Alum sol., ...	Crimson-red ppt., .	Yellow then violet sol.
Lime-water, ...	" " .	Bluish purple ppt.
Ferrous salts, . . .	Purplish bl'k " .	" black "
Ferric " . . .	Brownish red " .	Black "
Copper " . . .	" " " .	Purple sol.
Lead " . . .	Crimson-red " .	Violet "
Mercuric " . . .	Yellow " .	Yellow "
Silver " . . .	" " .	Gray ppt.
Tartar emetic, . . .	Rose-colored " .	Purple sol.
Stannous chloride, . .	Red " .	" ppt.
Sodium aluminate, .	Claret-red " .	" "

The extracts of *Saraca Indica* bark, containing the coloring principle, were tested with these reagents, and it was observed that the reactions agreed with the hæmatoxylin colors, and in no case with those of brasilin. However, the colors produced by different alkalies varied in tints as she had found in both the logwood and *Saraca* extracts, but the general term "reddish purple solution" is comprehensive. A rose-violet precipitate was yielded by stannous chloride solution with the neutralized acidified extracts of the barks.

The bark of the logwood-tree is not used for making the commercial logwood extracts, the wood of the tree being employed for this purpose. The presence of a small quantity of hæmatoxylin was determined in the specimens of logwood-bark which she examined, and with the bark extracts the same reactions with reagents were obtained as with the logwood extracts, but owing to the smaller percentage of dye in the bark the colors were less intense. In the case of the *Saraca Indica* bark the colors were very brilliant and indicated the presence of a larger proportion of the coloring matter than in the logwood bark. These results should encourage investigators to secure specimens of the *wood* of the *Saraca*, in order to determine if it contains the coloring principle, and should this be ascertained affirmatively, whether it exists in sufficiently large quantities to warrant its introduction as a new source of this commercial product.

To exhibit the colors produced by alkalies upon the dye from

[1] S. P. Sadtler and Wm. L. Rowland, Am. Jour. of Phar., Feb., 1881.

logwood bark and *Saraca Indica* bark, the powdered material was macerated over the water-bath with distilled or filtered river water acidulated with dilute sulphuric acid (1 part to 50), the extract was filtered and the process repeated until no more color was removed. This extract was treated directly with the reagents. Excess of reagents produced darker tints, and after a time the solutions were decolorized.

Reagents.	*Saraca Indica.* / *Hæmatoxylon Campechianum.* } Bark. Acidified Extract.
Sodium Carbonate.	Pale purple to reddish violet sol.
Sodium Hydrate.	Blue violet ppt. and sol.
Potassium Hydrate.	Red-colored solution.
Ammonia.	Pinkish-purple solution.

Among other constituents contained in the Saraca bark, catechin and saponin were determined. Their presence along with hæmatoxylin is significant as showing the chemical position of *Saraca* in relation to the genera *Acacia* and *Hæmatoxylon ;* catechin and saponin being found, as is well known, in *Acacia.* The evolutionary position of the order Leguminosæ, to which these genera belong, was pointed out in a former paper,[1] and it was stated that all orders containing saponin came under the middle division of M. Heckel's botanical scheme,[2] or multiplicity of floral elements. The facts accumulated from recent researches, since the publication of her article in the *Botanical Gazette*, and the discovery of saponin in many plants of widely different genera and families, seem to justify and confirm what was stated in the article referred to above, "saponin is invariably absent where the floral elements are simple; it is invariably absent where the floral elements are condensed to their greatest extent. Its position is plainly that of a factor in the great middle realm of plant life when the elements of the individual are striving to condense, and thus increase their physiological action and the economy of parts."[3]

George McClellan, M. D., and George L. English were elected members.

Prof. E. Selenka was elected a correspondent.

The following was ordered to be printed :—

[1] Certain chemical constituents of plants considered in relation to their morphology and evolution, by H. C. De S. Abbott. Botanical Gazette, vol. xi, 1886, p. 270.

[2] Les plantes et la théorie de l'évolution, *Revue Scientifique*, 13 Mars, 1886.

[3] *Loc cit.* Botanical Gazette.